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ABSTRACT

The New Designs for the Comprehensive High School project should provide for an organization of the school that is aligned with learner outcomes and learning process. Components of the organization must be aligned among themselves. High school models for organizing learners that meet student needs for connectedness and improved interpersonal relationships can be divided into two categories: providing a small school within a whole school for some students and dividing the whole school into smaller schools for all students. Researchers' concerns about the complexity, confusion, and incoherence found in the typical high school curriculum structure could be addressed through an integration of disciplines and alignment of the learning processes. Even though the curriculum is integrated, departmentalization of the high school still seems necessary. In addition to learning opportunities provided in the home school, other educational institutions and the community can provide settings for learning opportunities. In regard to learning time, outcome-based learning focuses on the axiom that learning should be the constant and time the variable. The goal of flexible learning time is to provide ample time for mastery of material by all students according to their needs. Staff organization should be adapted to reflect the needs that arise from providing an integrated curriculum for smaller groups of students. Staff organization can be adjusted within the traditional school structure, or staff may be integrated in a new structure. (Contains 54 references.) (YLB)

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LEARNING ORGANIZATION: REORGANIZING LEARNERS, LEARNING PROCESS, SETTINGS, TIME, AND STAFF IN THE COMPREHENSIVE HIGH SCHOOL

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LEARNING ORGANIZATION: REORGANIZING LEARNERS, LEARNING PROCESS, SETTINGS, TIME, AND STAFF IN THE COMPREHENSIVE HIGH SCHOOL

New Designs for the Comprehensive High School establishes a vision, incorporates a set of learner outcomes, and depends upon a core set of learning processes. The next phase of the design-down process involves the traditional school organization for learners, learning processes, learning settings,.time schedules, and the staff. New organizational strategies and specifications should support and extend previous design specifications in ways that are aligned with the signature and outcomes, and aligned with the learning process.

First, the goal is to develop design specifications for the organization of learning that support the achievement of the following learning outcomes for the comprehensive high school:

> In order to lead productive lives in a complex and changing society and to continue learning, the learner demonstrates the knowledge, skills, and attitudes essential to: (a) Communicate with words, numbers, visuals, symbols and sounds; (b) Think and solve problems to meet personal, social, and academic needs; (c) Contribute as a citizen in local, state, national, and global communities; (d) Understand diversity and the interdependence of people; (e) Work cooperatively in groups and independently; (f) Develop physical and emotional well-being; and (g) Contribute to the economic well-being of society. (Minnesota Department of Education, 1991)

Second, the organization of learning should support the following learner process specifications for the comprehensive high school: (a) Learning process is aligned with learner outcomes. Components of learning process (i.e., curriculum, instruction, and assessment) are aligned among themselves; (b) Learning process uses integrated curriculum; (c) Learning process uses assessment to improve learning; (d) Learning process is relevant to real life; (e) Learning process is personalized; (f) Learning process is active and experiential; (g) Learning process is emancipative; (h) Learning process is engaging; (i) Learning process is rigorous; and (j) Learning process creates a feeling of community.

Finally, the organizational structures should support a strong school community with focus and character. Over the past several years researchers have described

community, focus, and character as characteristics of schools that enhance the likelihood of student success. The sense of community, according to Raywid (1988), results from interaction and mutual independence, intention of permanence, expressive ties, communication, common and mutual sentiments, shared beliefs, and a ethic of individual concern and sympathy. Schools with character, according to Hill, Foster and Gendler (1990), "have clear, uncomplicated missions, centered on the experiences the school intends to provide its students and on the ways it intends to influence its students' performance, attitudes and behavior" (p. vii). These characteristics, when evident in the organizational structure, seem to improve learning.

Organizing Learners

Small schools may be better than large schools at providing the characteristics described by Hill, Foster, and Gendler, and Raywid. For example, two researchers, Boyer (1983) and Goodlad (1984), both addressed the size of the high school as a factor in the education of students. Boyer recommended that "large high schools organize themselves into smaller units—`schools-within-a-school'—to establish a more cohesive, more supportive social setting for all students" (p. 235). His recommendation was aimed at organizing high schools with fifteen hundred or more students into smaller units of a few hundred each. Boyer warned that care should be taken to prevent unintentional segregation by race or by economic status. Goodlad agreed with Boyer when he indicated that it is difficult to justify a senior high of more than five hundred to six hundred students. Although he admits there might be some curricular deficits if the school is too small, he is more concerned about the negative impact of large schools on students. He recommends that schools-within-a-school or houses be established to improve "the students' personal welfare" (p. 311). In addition to providing cohesive, supportive settings for students, the organization of learners (students) in the comprehensive high school should allow for the acquisition and assessment of identified learner outcomes.

Thus, appropriate strategies for organizing learners include those which provide expanded opportunities for students in small schools and those which provide more personalized groupings in large schools. Several strategies for organizing learners have been selected for further review because they represent efforts to meet the needs of students in the comprehensive high school. These strategies can be divided into two categories: (a)

providing a small school within a whole school for *some* students, and (b) dividing the whole school into smaller schools for *all* students.

Providing a Small School Within a Whole School for Some Students

Large schools can meet the unique requirements of specific groups of students by organizing them into smaller, focused groups. These smaller, focused groups can be organized according to interests or needs. Both the school-within-a-school and the academy provide models for a focused organization of learners. However, providing a small school within a whole school for some students may be criticized if it divides students by ability level. Middle school, secondary school, and vocational research warn that grouping by ability level or dividing students so that they are perceived to have different ability levels should be avoided. The following sections define and explain models for organizing some learners into smaller groups and present a review of the literature that provides some direction for organizing students.

The school-within-a-school models currently in use are primarily the result of pulling some students with similar interests or needs from the mainstream and grouping them into a single unit. Most of the groups have been comprised of students who have difficulty functioning in the larger school structure. In addition, some school-within-a-school models operate as alternative mini-school structures that address special needs of groups of students. One example of this would be grouping students who do not speak English as their native language. Finally, some of the school-within-a-school models focus on special topics or are designed specifically for gifted students.

An example of a school-within-a-school program that focuses on one particular area of study is the Business & Marketing Specialty Program at Johnson High School (1990) in St. Paul, Minnesota. This program, according to a publication from the school, "is specifically designed to meet the needs of persons who have indicated an interest in the academic knowledge base and learning experience necessary to pursue advanced education in marketing and small business management." It provides "the training necessary for high school graduates to enter marketing careers upon graduation." This particular program accepts without prerequisites twenty-five students from each grade level ten through twelve. Another example of a school-within-a-school program is the Wheatley School in East Williston, New York (Lund, Smith, & Glennon, 1983). This program, established in 1971, was designed to provide a group of students with a unique learning environment. It

included students from grades ten through twelve "who chose to participate in a program in which faculty members shared decision making and experimented with nontraditional teaching roles" (p. 503). According to the authors, the school governed itself with a constitution, power groups, a supreme court, and elected officials, and the program within the school focused on human relations, leadership, and governance skills. Although this program had some problems (i.e., other staff members believed the division between the traditional school and the school-within-a-school was unhealthy and some of the goals such as integrating disciplines and community involvement were not met), this 1983 report indicated they were offset by the benefits offered to the students.

In addition to the focused programs described in the previous paragraphs another possible school-within-a-school arrangement could be based on preferred learning styles. According to Sternberg (1990), "styles of thinking and learning are every bit as important as levels of ability" (p. 366). Sternberg reports variances in learning differences and the way students prefer to use their intelligence. Because both teachers and students use their favored teaching-learning style, it seems possible that matching those styles could capitalize on learning activities. It appears that students who learn in a like manner could be grouped so that the activities in which they are involved are congruent with their learning styles. The problem with this arrangement lies in the fact that students would not be exposed to thinking and learning styles different from their own. A better approach might be to help students develop the ability to shift from one style to another.

Amityville High School in New York (Perrin, 1990) and Blake Middle School (Sykes, Jones, & Phillips, 1990) use learning style approaches. Potential dropouts at Amityville High School were identified and block-scheduled into classes that addressed the unique learning styles of the students. According to Perrin, the students gained in both achievement and self-esteem. Blake Middle School in Minnesota uses an approach which addresses individual learner styles. Although the school does not divide students by learning styles, it does help teachers adapt classroom activities to accommodate differences in learning styles. Both Amityville and Blake Middle School teachers report a more positive learning environment as a result of the learning style approach.

According to a paper prepared for the Academy for Educational Development (Archer, 1989), academies are "three-year schools-within-schools" that link business and industry with schools in order to provide economically disadvantaged students with an

"integrated academic-vocational education, career development, and enrichment activities, and nonacademic supports and employment opportunities" (p. 1). The purpose of the academy is to make education relevant in two ways. First, the academy links coursework to employment opportunities and second, it helps students make successful transitions to work or postsecondary education. Archer found the following features in the academy model: (a) It is intended to serve students who are working below their potential, although some academies strive for a mix of students; (b) it has an integrated, interdisciplinary curriculum with an industry focus that infuses the curriculum with practical applications to make it relevant; (c) it has academic and nonacademic support services that may include guidance counselors, as well as staff members from other community-based agencies; (d) it uses a mentor program to pair students with employees of participating industries; (e) it has a work experience program that is central to the academy program; (f) it has an active, ongoing, and dynamic partnership with business and industry; and (g) it is small with approximately one hundred students and five to ten full- and part-time teachers and counselors.

One successful example of an academy is the California Partnership Academy. According to Stanford Mid-Peninsula Urban Coalition (no date). Academies are special because they have a close working partnership between the high school and local employers, use "team" teaching, have small classes, develop vocational skills, contain a mentor program, include a work experience program, and provide motivational activities with employer involvement.

The academy model has been evaluated systematically. Archer points out that the evidence shows the model "decreases dropout rates, enhances student achievement, and increases rates of post-graduation employment" (p. 3). Archer reports that Public/Private Ventures has called the academy "the best single model in the country for business involvement in the schools" (p. 3).

The unique features of the academy model have led to positive results with economically disadvantaged students. Some of these same features could be considered and possibly incorporated into the organizational structure for students in the comprehensive high school. The rigorous, integrated, interdisciplinary curriculum, dedicated industry partnership, and primary focus on students as individuals are consistent with the design specifications previously established in the research effort.

Schools frequently provide smaller schools within the larger school for students who have unique needs. They have been widely used for economically disadvantaged students and students at-risk of dropping out of school for various reasons. However, they have not been limited to those groups. Schools-within- a-school have also been developed for gifted students, students who have language restrictions, and students with specific career interests. The research indicates schools-within-a-school have produced positive results for the students who attend them.

Research on Organizing Learners

Although the school-within-a-school structure can fill the unique needs of some students, both middle school and vocational research discusses some concerns about grouping students. First, they discourage the use of grouping or tracking by ability level. Second, they discuss some of the ramifications of grouping students according to vocational interests.

Braddock (1990) and Oakes and Lipton (1990) each warn against dividing students by ability level. Braddock reviewed the current status of tracking in the middle schools and made some recommendations for middle school organization of students. Several of the comments seem to provide some direction for the organization of students in the comprehensive high school. According to Braddock, "nearly every school serving adolescents must face the dilemma of dealing with students' diverse academic skills and, at the same time, minimizing the use of labels that create invidious distinctions, lower students' self esteem, and lead to feelings of apathy" (p. 445).

Braddock found that some ability grouping existed in "roughly two-thirds or more of the nation's schools serving early adolescents and more than twenty percent assign students to all classes according to ability" (p. 446). Moreover, students may be assigned to all classes based on a single achievement score or they may be regrouped based on several criteria. According to Braddock, "variations in grouping and scheduling practices may purposely create some classes grouped by ability and others grouped heterogeneously." Ability grouping "has repeatedly been found to be ineffective for increasing student achievement" (p. 448).

Braddock recommends several alternatives to the rigid ability tracking, which meet the students' needs and have a less negative impact on personal development. These

include: (a) between-class tracking, (b) better placement criteria and better ways of allocating resources, (c) provisions for extra help, (d) student involvement in the placement process, and (e) cooperative learning. Each of these alternatives requires additional explanation:

1. Between class tracking—must be limited to basic academic courses which clearly require different levels of prior preparation.

2. Better placement criteria and better ways of allocating resources—separate tests and recent grades should be used for each tracked subject. Additional resources should be allocated toward the instruction of students in the lower tracks.

3. Provisions for extra help—all students should have the extra help needed to earn good grades.

4. Student involvement in the placement process—students could be given a choice of tracks with unusual grading options (such as pass-fail) in required courses.

5. Cooperative learning—allows mixed level teams to learn together.

The following statement summarizes Braddock's comments about the prevalence of ability tracking in the middle schools:

> Learning opportunities in the middle grades remain highly stratified—despite a middle school philosophy that encourages heterogeneous classes, despite various calls for school reform and restructuring to develop critical thinking skills among the nation's youth, and despite exhortations to insure that all children are provided equal access to learning opportunities. (p. 449)

Oakes and Lipton report that tracking does not promote achievement for average and lower-ability children and it may not benefit the smartest ones. According to Oakes and Lipton "highly capable students do as well in mixed classes as in homogeneous grouping" (p. 158), "being in a low track can foster poor self-concepts, lower aspirations, and negative attitudes toward school" (p. 158), and "placements, once made, rarely change" (p. 157). In fact, they found that "tracking excluded many children from ever being in some classes" (p. 159).

Braddock and Oakes and Lipton discourage the use of tracking by ability level as a means of organizing learners. Although the emphasis in some of the research has not been on the comprehensive high school, it seems likely that many of the same concerns could be voiced about tracking at the high school level.

Vocational literature also addresses tracking. However, rather than directly discussing tracking students by ability level, vocational literature reports that students in vocational tracks may be tracked by perceived-ability level. Plihal, Johnson, Bentley, Morgaine, and Liang, (1992) provides an historical look at tracking according to vocational and/or academic interests as a way of grouping students. At the end of the 19th century, public school systems were providing a cultural-liberal education and craftspeople were being educated through apprenticeship programs. Then, working class families began to send their children to school. At about the same time Frederick Taylor's "scientific management" principles were being used to provide a factory model school system. These two factors facilitated the adoption of the attitude that vocational education could train workers, help socialize the poor, and "make schools more efficient by sorting students according to their probable destinies" (p. 8). Consequently, according to the report, "We have seen throughout the twentieth century that vocational and academic education have been treated as opposites, serving two different populations..." (p. 9). The vocational-academic tracking system may be a means for perpetuating the current American social class structure.

Several concerns have been raised about the tracking of vocational students. Plihal, Johnson, Bentley, Morgaine, and Liang ask: "If we have different curriculum strands, which students shall have access to which strands? Can different curriculum strands be equally beneficial to different students? What happens to students' lives as a result of tracking?" (p. 10).

The answers to these questions can be found in some of the more recent vocational education research reports by Copa and Tebbenhoff (1990); Beck (1990); Raizen (1989), and Philal, Johnson, Morgaine, Bentley, and Liang (1992). These reports recommend moving away from the vocational-academic stratification as a way of organizing learners. Philal found that reform reports recommend "no grouping according to past achievement or presumed ability" (p. 10). Beck believed that the vocational, college preparatory, general education organization of school tracks "denies the interaction that characterizes everyday

life" (p. 51). Caroline Turner, as reported by Copa and Tebbenhoff, criticized many aspects of the current tracking system. She indicated that "not only are people tracked into vocational courses, but they are tracked out of taking courses that would help them, like physics and science, because those are for the advanced placement students" (p. 39). Raizen commented that the current education system "has adjusted by offering separate tracks, encouraging students to select 'preparation for doing' (i.e., vocational track, trade schools, and community colleges) or 'preparation for knowing' (i.e., academic track and college-university)" (p. 18). However, she continued, criticisms exist for both tracks—vocational education is criticized for "reifying a second-class educational track" (p. 18), and academic and general tracks are criticized because they do not provide "adequate preparation for the workplace" (p. 18).

The research indicates that organizing learners by ability level or by perceived ability level is detrimental to their learning. The middle school and secondary research specifically warns against placing students in permanent tracks. The vocational research recommends moving away from the current vocational-academic tracking system and moving toward the integration of the vocational and academic curricula. The research implications should be considered as learners are organized into smaller groups.

Dividing the Whole School into Smaller Schools for All Students

Several models have been identified that create smaller, more intimate groups for students with unique needs. However, there is some evidence to suggest that more personalized groupings, such as those offered in smaller schools, would be beneficial for all students. Smaller groupings provide students with the connectedness and interpersonal relationships that enhance learning. Models that provide small schools for all students include the house plan described by Oxley (1990), the Champlin Park High School (1991) house plan options, Woodland High School's (Wilcox, 1991) career path plan, and Raywid's (1989) schools-within-a-school structure, which she uses in her fictional Paradigm High School.

The house plan, according to Oxley, subdivides large schools "into physically discrete smaller units creating intimate environments that promote interaction among staff and students" (p. vi). It creates a small school atmosphere in a big school. Oxley reports the following key elements of the well-designed house plan:

1. The house plan creates a small school environment where staff and students interact and ample opportunities are available for students to participate in extracurricular activities.

2. The house plan allows coordinated and cohesive instruction with teachers working as members of cross-disciplinary teams.

3. The house plan includes a management system which allows staff and students to be involved in the decision-making process.

4. The house plan provides support systems that promote continuity and personal relationships.

5. The house plan requires that the physical facilities be organized so that staff and students get a small school feeling.

The structure for the house plan can vary depending on the needs of the students. Houses should not have over five hundred heterogeneously mixed students who should stay in the same house throughout high school. An interdisciplinary teaching team would be part of each house. In addition, each house should have a permanent support staff, a program of extracurriculars, a management team, and an operating budget.

The house plan can be organized in either a vertical or horizontal structure. A vertical structure has students from different grade levels in the same house. A horizontal structure divides one grade level into houses. The divisions may occur through distinctive programs that attract students or it may occur by random assignment of students. Goodlad recommends that houses be organized vertically "so that each contains students from all secondary grade levels, or, put differently, so that each student spends his or her entire junior or senior school career affiliated with one house" (p. 311).

Examples of modified vertical and horizontal structures are evident in the following committee report offered to the teachers in the Champlin Park High School (1991). Champlin Park High School includes four houses of approximately six hundred students. Students attend social studies, mathematics, and English classes in the house. CPHS allows for four different house configurations:

1. Each house could include grades nine through twelve. These students would remain in the same house for the four years in which they attend CPHS and work with the same guidance counselors and assistant principal for all four years.

2. CPHS could have two houses composed of ninth and tenth graders and two houses composed of eleventh and twelfth graders.

3. CPHS could have two houses of ninth and tenth graders which follow a traditional curriculum, and two houses of eleventh and twelfth graders which would provide opportunities to specialize in certain areas depending on their plans for after high school.

4. CPHS could have four magnet houses, grades nine through twelve, in which students would have expanded opportunities to specialize in certain areas. Examples of possible magnet themes are fine arts, social action, authentic communication, and academics. A modification of this plan would include two traditional ninth and tenth grade houses and two eleventh and twelfth grade "magnet" schools.

According to Oxley, "house systems that organize schooling around houses—instruction as well as support and student activities—have a more favorable impact on students than ones that do not" (p. 12). Oxley's research, based on four house systems in New York City, found that students derived both social and academic benefits from tightly organized house plans; those having many of the key elements of well designed house plans. Loosely organized house plans in schools of a similar size failed to provide the same results.

Finally, Oxley reports, several obstacles may need to be overcome in order to organize a house plan system. Some of these include: (a) a house system cannot coexist with traditional, subject-centered schooling, (b) most schools have too many courses for a house plan system, (c) teachers may be assigned to classes outside their house, (d) curriculum requirements may prevent the use of interdisciplinary curriculum, (e) it may be difficult to integrate support services into the house, and (f) there may be problems with the availability of physical space. With a concerted effort by those who are contemplating the house plan system, many of these obstacles can be overcome.

One example of a school that organizes learners into smaller groups is the Woodland High School in California. Wilcox (1991) reports that Woodland High School divides learners according to their chosen career paths. The structure used at Woodland meets student needs for relevancy and connectedness. Woodland Principal Kevin Brown (quoted in Wilcox) says, "We determined a few years ago that we were missing two key elements that helped motivate students to want to learn—practical application and relevancy. There wasn't a connectedness to high school for the vast majority of kids" (p. 39). Woodland's response was to cluster courses to prepare students for work in broad occupational fields. Students develop four-year plans that tie-into to one of the six career paths—agriculture and natural resources; arts and communications; business and marketing; health, home, and recreation; industrial technology and engineering; social, human, and governmental services.

Although the focus at Woodland is careers, Wilcox reports that the integrated curriculum allows college-bound students to take more vocational classes and vocational students to take more academic classes. The vocational and academic programs are viewed as complementary strategies, which allow all students to progress through the curriculum to reach their goals. Two of the unique factors evident in this organization of learners are "the interdisciplinary nature of Woodland's career paths [that] provides students with the breadth and depth of skills and knowledge they will need to succeed when they move into the world of work" (p. 40), and a "career path structure [that] brings all types of students into contact with one another" (p. 40).

In a second example, learners are organized by expressed interests at Paradigm High School—a fictional school incorporating many nontraditional concepts which was created by Raywid (1989). It uses a school-within-a-school approach for all students. Each of the schools-within-a-school has its own personnel and students and follows a "distinctive vision of schooling (p. 51)." According to Raywid, each of the four schools contains approximately two hundred fifty students and ten teachers who chose one of the four themes—Challenge Team, Social Services Academy, Sequoia Institute, and Media—according to their interests. Although students at Paradigm High School share some common areas such as the library, gym, and auditorium and occasionally participate in some full student body activities, most of the time they are in their own school, which is physically separated from the rest of the schools. The school facility was built as a giant "X" with the four lines representing the schools and the intersection of the the shared areas.

Some of the main characteristics of Raywid's school-within-a-school structure include:

1. Schools are carefully investigated by students before they select one, they are able to shift from one school to another if their needs or interests change.

2. Each school determine sparticular program content and activities appropriate for its student population within general curricular goals established for the entire high school.

3. Each of the schools has a full curriculum, a distinctive organization and culture, and a unique curricular emphasis.

4. Teachers are intimately involved in the design and direction of the school, and decision-making occurs close to the classroom.

5. Students are not limited to the classes in their school; they may occasionally take classes in other schools. In addition, programs at the college, community activities, internships, and independent study are available to students.

Raywid admits that Paradigm High School, like existing schools, "is not without its problems—but is refreshingly different from those with which we are familiar" (p. 58). She indicates that Paradigm High School's school-within-a-school structure may seem fanciful, but the features are not fictional. Although Paradigm High School does not exist, the features have been assembled from schools that do exist.

Conclusion

The literature discusses a variety of methods for organizing learners. These include heterogeneous grouping, grouping by ability, grouping by interest, and grouping by need. Frequently, when whole schools are divided into smaller groups, students are grouped either heterogeneously or by interest. When some students are selected for a smaller group, it is frequently because the current structure is not filling their unique needs. Although these programs have been successful, according to middle school, secondary school, and vocational research, care must be taken to prevent students from being tracked

by ability or moved into a second-class track. Grouping students is most beneficial if it expands opportunities rather than limits them.

The entire student population in large schools can be divided into smaller groups. This organization of learners is beneficial because it allows students to feel connected to the school, develop more personal relationships, and pursue unique interests that enhance both motivation and achievement. The house plan and the school-within-a- school approach for all students are two ways that students in large high schools can be organized to provide many of the small school advantages.

Organizing the Learning Process

Sizer (1986), committed to the improvement of American schools, defined what he believed were the essential principles for a new high school. These nine principles included many of the ideas that are currently being incorporated into the rebuilding of high schools through the Coalition of Essential Schools. The principles deal with all aspects of the high school structure including the organization of the learning process. According to Sizer, the common, general principles of the coalition plan are:

1. An intellectual focus. Schools should focus on helping adolescents to learn to use their minds well. Schools should not attempt to be comprehensive, if such a claim is made at the expense of the school's central intellectual purpose.

2. Simple goals. School goals should be simple: that each student master a limited number of essential skills and areas of knowledge. While these skills and areas will, to varying degrees, reflect the traditional academic disciplines, the design of programs should be shaped by the intellectual and imaginative powers and competencies that students need, rather than necessarily by subjects as conventionally defined. The aphorism *less is more* should dominate; curricular decisions should be guided by the aim of thorough mastery and achievement rather than by an effort merely to "cover content."

3. Universal goals. The schools' goals should apply to all students, while the means to achieve these goals will vary as those students themselves vary. School practice should be tailor-made to meet the needs of every group or class of adolescents.

4. Personalization. To the maximum extent feasible, teaching and learning should be personalized. Efforts should be directed toward seeing that no teacher has direct responsibility for more than eighty students. To capitalize on this personalization, decisions regarding the details of the course of study, the use of students' and teachers' time, and the choice of teaching materials and specific pedagogy must be unreservedly placed in the hands of the principal and staff.

5. Student-as-worker. The guiding metaphor of the schools should be student-as-worker, rather than the more familiar metaphor of teacher-as-deliverer-of-instructional-services. Accordingly, a prominent pedagogy will be coaching to provoke students to learn how to learn and to teach themselves.

6. Student exhibitions. Students entering secondary school studies are those who can show competence in language and elementary mathematics. Students of traditional high school age, but not yet at appropriate levels of competence to enter secondary school studies, will be provided intensive remedial work to assist them in meeting these standards quickly. The diploma should be awarded upon a successful final demonstration of mastery for graduation—an exhibition. This exhibition by the student of his or her grasp of the central skills and knowledge of the program may be jointly administered by the faculty and by higher authorities. As the diploma is awarded when earned, the program proceeds with no strict age grading and with no system of *credits earned* by *time spent* in class. The emphasis is on students' demonstration that they can do important things.

7. Attitude. The tone of the schools should explicitly and self-consciously stress values of unanxious expectation ("I won't threaten you, but I expect much of you"), of trust (until abused), and of decency (the values of fairness, generosity, and tolerance). Incentives appropriate to particular students and teachers should be emphasized, and parents should be treated as essential collaborators.

8. Staff. Principals and teachers should perceive themselves as generalists first (teachers and scholars in general education) and specialists second (experts in one particular discipline). Staff members should expect multiple obligations (teacher-counselor-manager) and should show a sense of commitment to the entire school.

9. Budget. Ultimate administrative and budget targets should include, in addition to total student loads per teacher of eighty or fewer pupils, substantial time for collective planning by teachers, competitive salaries for staff, and an ultimate per-pupil cost not to exceed by more than ten percent that at traditional schools. To accomplish this administrative plans may have to show the phased reduction or elimination of some services now provided students in many traditional comprehensive secondary schools. (p. 41)

The principle that is particularly relevant for discussion regarding the organization of the learning process is Principle 2, which states the program of study must be simple. In 1983 Sizer explained:

> The complexity and confusion of the existing curriculum must be eased, in order to provide a setting where students can learn a few things well and learn how to learn. All students would be enrolled at all times in all areas, but the obvious need for variety and student choice would be accommodated within each of those areas. (p. 37)

Sizer's recommendation for eliminating the complexity and confusion of the existing curriculum is repeated in slightly different forms in much of the educational research. Powell, Farrar, & Cohen, (1985), state that "those who work in secondary education have little sense of an agenda for studies" (p. 306). The authors report that "there is only a long list of subjects that may be studied, a longer list of courses that may be taken, and a list of requirements for graduation" (p. 306). Boyer discusses the coherence of the curriculum. He reports that the current instructional program in its recognition of the integrity of disciplines "gives students a narrow and even skewed vision of both knowledge and the realities of the world" (p. 114).

Many educational researchers, in response to these and other similar concerns, believe that integrating curriculum in the high school may solve some of the problems that are related to current curriculum complexity, confusion, and incoherence. The following sections of this paper will discuss some of the research that has been done regarding

integrated curriculum. The topics that will be addressed include: (a) reasons to integrate curriculum, (b) methods for integrating curriculum, (c) research about integrating curriculum, and (d) organization of integrated curriculum.

Reasons to Integrate Curriculum

Educational research has identified a multitude of reasons for organizing the learning process through integrated curriculum. These reasons range from Boyer's recommendation that students be allowed to develop connections between learning and the larger world to Goodlad's concern that separate vocational and academic tracks may create a self-fulfilling prophecy that creates two classes of workers. The following list describes five commonly cited reasons to integrate curriculum—political, cognitive, meaning, outcomes-based, and equity:

1. Political. Federal and state legislation and funding frequently rewards vocational-academic integration. An example is the current federal vocational education law, which includes tech-prep funding.

2. Cognitive. According to a recent report (National Council on Vocational Education, 1990-1991), serious problems exist with the current learning situation. Some of the problems based on cognitive science theories can be solved through an integrated curriculum approach which recognizes that: (a) people do not predictably transfer learning across subjects; (b) "holistic, complex, meaningful environments organized around long term goals" (p. xiii) are better than fractionated programs; (c) traditional curriculum design is based on a conceptual analysis that ignores what is already in the learner's head; and (d) skills and knowledge should be acquired in context.

3. Meaningful. Stewart's (1990) statement regarding the necessity to make a real-life connection between learning and life for each student reflects the sentiment of many others who recognize the need to make learning meaningful:

> In all, educational experiences will have little meaning to secondary school students unless the experiences show a real-life connection . . . rather than learning fragmented content within isolated subjects the students must, instead, be substantively involved in meaningful teaching-learning situations in which they constructively apply subject-integrated content to real-world problems. (p. 15)

4. Outcomes based. For the past several decades, students learning has been measured by Carnegie units. A Carnegie unit was defined by the hours spent studying a particular subject. If a student spent enough hours in one subject, the student would earn one unit of high school credit. Outcome-based standards, where students will be required to demonstrate achievement of outcomes learned, have the potential to eliminate the Carnegie unit as a measure of competence. In most cases the outcomes are not subject or discipline specific; they can be acquired in a multitude of ways. According to the Minnesota Department of Education (1991), the Minnesota outcomes will be measured by "validated performance indicators" (p. 4) rather than time spent on a specific subject.

5. Equitable. Historically, according to a report by Selvin, Oakes, Hare, Ramsey and Schoeff (1990), "across the nation, students current access to and participation in vocational and educational opportunities differ considerably" (p. 5). Some schools focus on academics and some on vocational courses. In addition to inequities in program offerings, they also report that tracking students limits access to and participation in vocational and academic programs. Goodlad recognizes similar concerns regarding the equity of education for all students. Three questions should be addressed: (a) Is the division of secondary schools into students emphasizing vocational studies and others pursuing primarily academic programs a self-fulfilling prophecy reflecting a popular myth about learning that begins its relentless course in the primary grades? (b) Is the ultimate fulfillment of this prophecy a further division of people into two classes of workers? (c) Is there equity among socioeconomic classes and white, blacks, and Mexican-Americans in regard to the circumstances and the outcomes of the process? (p.147)

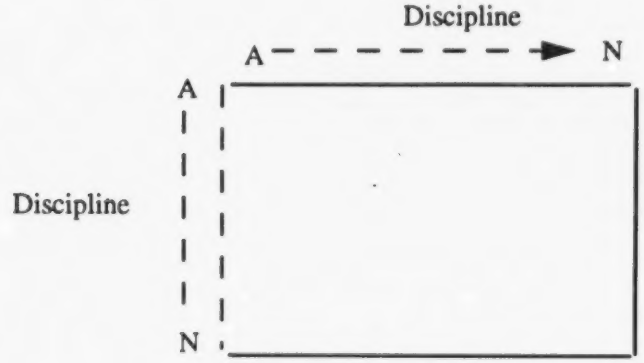
The themes that are expanded upon in the above paragraphs provide direction for the organization of the learning process. In each case they identify concerns about the current system's attempt to address political issues, cognitive and learning issues, the meaningfulness of the curriculum, the acquisition of outcomes, and the need for equity for all students. It is possible that integrating curriculum areas would eliminate some, and perhaps, all of the above concerns and issues regarding the organization of the learning process.

Methods for Integrating Curriculum

Integrating curriculum ceases to be organized in the traditional fragmented, discipline model. Instead subject matter is combined to form a coherent, connected design for learning. The combination of discipline areas can take many forms. For example, curriculum could be integrated through combining different academic disciplines, combining academic and vocational education, or combining all education within a thematic or topic-centered approach. Plihal, Johnson, Bentley, Morgaine, and Liang found that "some approaches to integrating curriculum retain the autonomy of subject areas; other approaches blur or even erase distinctions between subjects" (p. 12). Some possible options for integrating curriculum include

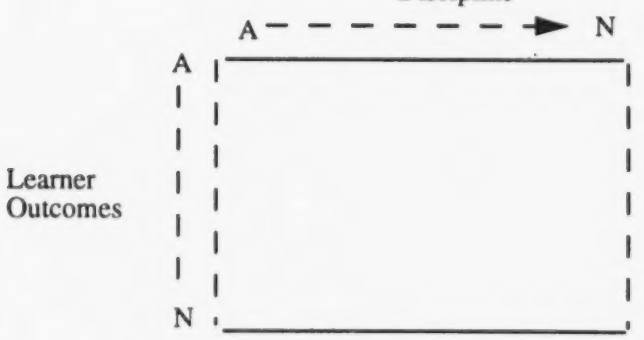
a. Discipline by Discipline

Figure 1



b. Learner Outcomes by Discipline

Figure 2



c. Learner Outcomes A ---------> N

(Eliminate departments for each discipline.)

d. Clustered using a theme, problem, or area of social development.

In a recent article, Fogarty (1991) identified nine ways to integrate curriculum. Fogarty's models range from a simple connection between two topics in a subject area to a complex and cohesive integration of all learning that is directed by the learner. Her models are arranged in a continuum from very limited integration to complete integration:

1. Connected model. Connections are made between the topics within each subject area. For example, the geology unit is related to the astronomy unit.

2. Nested model. Natural combinations are integrated. For example, "the circulatory systems could target the concept of systems" (p. 62).

3. Sequenced model. Topics are arranged within different disciplines so that similar units coincide.

4. Shared model. Concepts, skills and attitudes traditionally taught in separate disciplines are taught with a single focus.

5. Webbed model. Themes are used to integrate subject matter for cross-disciplinary units of study.

6. Threaded model. "This model threads thinking skills, social skills, study skills, graphic organizers, technology, and a multiple intelligences approach to learning throughout all disciplines" (p. 63-64).

7. Integrated model. "Interdisciplinary topics are rearranged around overlapping concepts and emergent patterns and designs" (p. 64).

8. Immersed model. All data is funneled through an area of interest; the integration takes place within the learner.

9. Networked model. Learners direct the integration process.

In addition to Fogarty's listing, other authors have discussed methods of integration. Drake (1991) discussed the following integrated approaches that characterize the stages for the development of an integrated curriculum in Ontario. Like Fogarty's listing, Drake's experiences range from the simplest form of integration to more complex forms:

1. Multidisciplinary experience. Different discipline areas were centered around a theme.

2. Interdisciplinary experience. Activities that were used to develop the theme were identified by subject area.

3. Transdisciplinary experience. Content and the theme were one and the same; there were no discipline areas identified.

Plihal, Johnson, Bentley, Morgaine, and Liang also discuss several theoretical approaches for achieving integration of subject matter. The approaches they identify include:

1. Reinforced curriculum. Supplemental materials are used to reinforce content in an existing class.

2. Correlated curriculum. Two or more teachers make connections between subject matter.

3. Fused curriculum. Content, materials, and applications from two or more subjects are combined to form a new subject.

4. Broad field curriculum. Synthesized knowledge is used to builds on a number of content areas to relate to a common goal.

5. Core curriculum. Knowledge and learning are organized around identified problems.

As is evident from the above lists of theoretical approaches and models, integration of subject matter can take many forms and be accomplished with varying degrees of intensity. Each of the authors has identified several different integrated approaches that could be most appropriately used in different situations. In fact, according to some recent research combining vocational and academic curriculum, the researchers discovered that different approaches were used depending on the situation. Beck, Copa, and Pease report that teachers and administrators made decisions about which approach to use based "on their perceptions of the high school's goals, the students' needs, and their experience with interdisciplinary teaching" (p. 29).

Research About Integrating Curriculum

Researchers have discussed integrated curriculum from an historical perspective, in the middle school, and in vocational education. Much of the discussion identifies issues, concerns, and implications for integrating curriculum in the comprehensive high school. Although the discussion about integration of curriculum has recently expanded to academic areas, for the most part, the initial discussions surrounding the integration of curriculum appear in middle school and vocational education literature.

According to Vars (1991) "efforts to integrate the curriculum have a long history" (p. 14). He reports that since 1942 more than eighty normative or comparative studies have reviewed the effectiveness of integrative programs. Results show that "in nearly every instance, students in various types of integrative-interdisciplinary programs have performed as well or better on standardized tests than students enrolled in the usual separate subjects" (p. 15).

Middle school literature, according to Beane (1991), carries the idea of "developing a program of common learnings [sic] for all early adolescents that would be experience-centered and organized around personal and social problems" (p. 10). However, he reports, most middle schools and junior highs are still using the "subject-centered organization." Although school personnel may discuss their interdisciplinary units, he believes the units are in fact multidisciplinary and certainly not integrative. His research indicates that the continued differentiation of subjects exists and "even the more innovative curriculum examples in middle schools are really adapted versions of the high school curriculum" (p. 10).

Vocational research has recently addressed integrating academic and vocational education. According to Benson (1991), the associates of the National Center for Research in Vocational Education (NCRVE) hold that integration of vocational and academic learning means

> revising processes of instruction such that academic programs display bountiful applications of theory, i.e., what the theory is used for, while at the same time the vocational programs incorporate theory that supports the practical skills that are being learned. (p. 15)

Several successful examples of integration of vocational and academic learning exist. Beck, Copa, and Pease report that based on research involving interdisciplinary collaborations by vocational and academic teachers, teachers came away "with new ideas for research and development and a desire to continue developing models for interdisciplinary collaboration . . ." (p. 31). Plihal, Johnson, Bentley, Morgaine, and Liang give five examples "that represent various ways in which [integration efforts] are combined and expressed in practice" (p. 30). Beck (1991) in a discussion of academic-vocational integration reports that schools should have more than integration. He recommends that they go a step further to interaction. Interaction is "collaboration where the curriculum is not only a mechanical combination of the vocational-technical and the academic, but a thoughtful amalgam to which the collaborating teachers interact to produce course content stimulated by a give-and-take" (p. 101).

Currently, although there is a "great deal of activity and interest in integrating [vocational and academic] curriculum" (Plihal, Johnson, Morgaine, Bentley & Liang,p. 42), there is also "a lack of clarity and precision about the purpose and procedures for integration" (p. 42). According to the report, the following issues surrounding the vocational-academic integration efforts should be discussed: (a) What should be integrated? (b) Who should benefit from an integrated curriculum? (c) What is the desired outcome of integration? and (d) How should integration efforts be evaluated?

Organizing the Integrated Curriculum

Even though curriculum is integrated, it seems necessary to somehow organize or departmentalize the curriculum within the comprehensive high school structure. The following methods provide some suggestions for the organization of an integrated curriculum:

1. Career paths. Integrated curriculum could be organized into clusters of courses designed to prepare students for work in broad occupational areas. One such example is Woodland High School, which uses the following career paths: agriculture and natural resources; arts and communications; business and marketing; health, home, and recreation; industrial technology and engineering; and social, human and governmental services. Another way to organize curriculum from a workplace perspective would be use the basic workplace skills identified by Carnavale (1991): the academic basics (i.e., reading, writing and computation; learning to learn; communication: i.e., speaking and listening); adaptability (i.e., problem solving and creating thinking; developmental skills: i.e., self esteem, goal setting, motivation, and personal and career development); group effectiveness (i.e , interpersonal skills, negotiation and teamwork); and influencing skills (i.e., organizational effectiveness and leadership skills).

2. Thematic approach. This approach usually requires the organization of curriculum around several conceptual themes that are relevant to the students. One somewhat limited example of the thematic approach is the Humanitas Program in the Los Angeles Unified School District (Aschbacher, 1991). This program uses themes such as women, race, social protest, the Protestant ethic, and the spirit of capitalism to provide integrated curriculum and connectedness between the course work and the student's personal and cultural backgrounds.

3. Problems or concerns. According to Copa (1991) problems or concerns are the "discrepancy between the desired state of affairs" (p. 100) and the present state of affairs. These problems or concerns, once identified, could suggest the content or curriculum areas. Copa identified the following problem areas: understanding, rights and responsibilities, relationships, technology, general competence, specific competence, and managing. These problems or concerns could be used as a basis for organizing curriculum.

4. Learner outcomes. The learner outcomes could be used as a basis for organizing the learning process. Because of the interdisciplinary nature of the outcomes, learners can master each outcome in a number of different ways. Some examples of ways the outcomes could be mastered are through the traditional discipline structure, through an integrated structure, outside the home school, or through

personalized projects. Learning processes organized around learner outcomes could ensure that learners mastered each outcome before graduating.

Although the above suggestions can be used as a starting point for a discussion about the organization of an integrated curriculum, they are not meant to be a solution to the problems that need to be resolved.

Organizing the Learning Setting

In addition to the home high school as a setting for learning, other learning settings for learning include those which are found in the community, the workplace, the home, and in other educational institutions. These alternative settings can provide unique experiences for students in large schools or additional learning opportunities for students in small schools.

Learning Settings in Other Educational Organizations

Educational opportunities for secondary students are not restricted to the home school. Over the past several years, colleges and vocational schools have provided a variety of courses and programs for high school students. In addition, programs for students with special needs or interests have been developed at state centers, area learning centers, or vocational centers. Finally, recent legislation at both state and federal levels, such as the post-secondary option legislation, tech-prep legislation, and secondary school choice, has expanded the educational settings available for high school students.

Colleges

Colleges have frequently allowed students to register for classes that are not offered in the high school. In the past, this option has been primarily available to gifted or advanced students who want to continue advanced course study. Under the post-secondary options plan (to be explained later) several states have expanded this option to all students. Students frequently receive simultaneous college and high school credit for courses taken in the college setting.

Area Vocational Schools

According to McDonnell and Grubb (1991), area vocational schools are "designed to produce economies of scale by providing vocational programs to students in regions larger than school districts" (p. 24). These regional institutions provide "intensive vocational training for a broader range of occupations than could typically be offered in comprehensive high school" (p. 25). McDonnell and Grubb report that during the 1970s, secondary enrollments in the vocational schools have declined, and the schools, in order to ensure survival, have expanded their enrollment to adult populations.

State Schools

Some states have adopted laws that provide special state schools for students who are gifted in a particular area such as mathematics, science, and the arts. According to the U.S. Department of Education (1989), Louisiana, Mississippi, North Carolina, and South Carolina have state schools. Minnesota recently joined the list when it passed legislation which created the Minnesota Art School for high school students.

Area Learning Centers/Alternative Programs

Area learning centers and alternative programs focus on academic and learning skills, trade and vocational skills, work experience, and transition services. Frequently, these area learning centers-alternative programs operate as second chance programs for students whose needs aren't being met in the home school. The following categories of students are identified in one state as those who can benefit from area learning centers: those who are chemically dependent, not likely to graduate from high school, need assistance in vocational and basic skills, can benefit from employment experiences, and need assistance in transition from school to employment.

Post-secondary Options

According to a document used in the Regional Strategy Meetings on Choice in Education (U.S. Department of Education, 1989), under a post- secondary enrollment options program "the State authorizes local educational agencies to permit secondary students to enroll in courses in eligible post-secondary institutions and receive secondary or post-secondary school credit for such courses" (p. 3). States which have post-secondary enrollment options include Arizona, Colorado, Florida, Iowa, Louisiana, Maine,

Minnesota, Ohio, Utah, and Washington, and the legislation has been proposed in additional states.

Tech Prep

In 1990, Federal legislation was passed that recognized the value of coordinating the secondary and post-secondary educational program. Hoerner (1991) discussed the following elements of the legislation: (a) funding is provided for tech-prep planning and implementation; (b) the act requires that a combined secondary-post secondary program be developed that leads to an associate degree or two-year certificate, provides technical preparation, builds student competence in academics, and leads to employment; and (c) the program must be carried out under an articulation agreement which involves the two years of secondary school preceding graduation and two years of higher education. According to Hoerner, "tech-prep programs, by incorporating a work incentive strategy, have the opportunity to involve business-industry and add relevancy to education for many of our youth" (p. 19).

Secondary School Choice

Recently, legislation enacted in Arkansas, Iowa, Minnesota, Nebraska, and Ohio, and proposed in several other states, has provided that students may attend any school within their state even though the student is not a resident of that district. Normally, the state funding goes with the student to the school of their choice. Some of the state statutes ask for voluntary participation from districts and some mandate participation. Most of the time, enrollment in the district of choice may not be denied on the basis of the applicant's academic achievement, may not interfere with desegregation plans, and requires students provide their own transportation. According to Nathan (1989), "In places as diverse as East Harlem and the state of Minnesota, such plans have had an immediate positive impact on student achievement."

The alternative settings for learning that are available in other educational institutions have multiplied in recent years. The recognition that the traditional home school setting isn't necessarily meeting the needs of all students seems to have stimulated this expansion of educational opportunities for students. Other institutions, outside the home school, have been able to provide options which address student needs and interests.

Learning Settings in the Community

In addition to the added learning settings available in some educational institutions, other places for learning can also be provided within the community. These settings are capable of creating added opportunities for students in small schools as well as providing unique experiences for students in medium and large-size schools. Models included in this category would incorporate the community or business into the school structure; sometimes this is described as a partnership. Apprenticeship programs, cooperative work experience programs, school-supervised work experience, and community service learning are examples of strategies that would be in this category.

Apprenticeship Programs

Traditionally, apprenticeship programs have teamed an apprentice with a master—someone skilled in a trade. This relationship has allowed the apprentice-learner to work with the master-teacher to acquire the skill and knowledge required to perform the job. Recently, some researchers have recommended that apprenticeships be reorganized to provide better learning experiences. One example of this reorganization is discussed by Raizen (1989) who, although she recognizes that apprenticeships are a reasonable way of educating for work, believes they must be more than a hands-on experience. She reports that apprenticeships must use modern work settings with highly skilled coworkers and teachers who provide guidance and explanation. Apprenticeships should encourage collaborative learning, creativity and ingenuity, and observation and practice. Raizen reports that traditional apprenticeship programs must be transformed to match modern work.

The German apprenticeship model represents one way to approach apprenticeships. Perry (1991) reports that this model provides "part-time vocational schools teaching academics and vocational skills combined with on-the-job training at local companies" (p. 46). One German school, which specializes in social work and domestic subjects, provides a two-year course of study with the first year devoted to classwork and the second year directed toward employment. A second school specializing in sales and business, provides a two- to three-year program with student apprentices in school half a day and with their employer half a day.

Cooperative Vocational Education

Cooperative vocational education programs usually contain three components: related classroom experience, employment, and participation in a youth organization. Students who participate in these programs typically attend classes in the morning and work in the afternoon. Stern, McMillion, Hopkins and Stone (1990) report that the research on cooperative education programs has failed "to discover consistent statistical evidence that co-op students experience greater success in the labor market than other students" (p. 377). However, even though the research is mixed regarding future success in employment, several immediate benefits were evident. For example, coop students "claimed that their high school programs favorably affected their decision to remain in school, to attend classes during the senior year, to obtain a full-time job immediately following graduation, to obtain a job related to their high school program, and to be more satisfied with their final jobs" (p. 378).

School Supervised Work Experience

The school supervised work experience is usually more flexible than the cooperative vocational education program. According to a report from the Wisconsin Department of Public Instruction (1990), "school-supervised work experience does have the potential to develop greater self reliance, a more positive work orientation, and a clear sense of identity" (p. 2). In Wisconsin the school-supervised work experience is defined "as a set of planned educational experiences, supervised by licensed school personnel, designed to enable learners to acquire attitudes and knowledge for work and other life roles by participating in actual or simulated work settings related to in-school instructional programs" (p. 2). These programs are available to all students kindergarten through grade twelve, with "more specific occupational work training in grades seven through twelve, and paid work experience in grades ten through twelve" (p. 2).

Community Service Learning

Community service learning exists when students enter the community to work, study, and do community service projects. According to Conrad and Hedin (1991) community service "represents a wide array of programs operating under an equally wide array of assumptions about their impact" (p. 745). Briefly, the arguments for community service are that it's "a way to stimulate learning and social development, a means of reforming society and preserving democracy and an antidote to the separation of youth

from the wider community" (p. 745). This interaction with the community would be experiential in its orientation. Conrad and Hedin report that "research on the impact of community service suggests that it can and often does have a positive effect on the intellectual and social-psychological development of participants" (p. 747).

Goodlad recommends community service for students and discusses a phase in the education-school continuum where there would be "a combination of work, study and service conducted within an educational ethos . . . with the more academic aspects arising out of guided experiences rather than the other way around" (p. 347). Individual and group counseling would be a part of the program and community members could be mentors, serve as role models, supervise, and coach students who were assigned to them.

Apprenticeships, cooperative vocational education, school supervised work experience, and community service provide added learning settings for students. Students are in a real world environment, they observe experts, and they engage in real experiences. These experiences reportedly have positive effects on students. Other experiences would include internships. Although most typically real world experiences are found near the end of a program of study, they ideally should be intertwined with study at all levels.

Organizing Learning Time

Outcome-based learning focuses on the axiom that learning should be the constant and time the variable. This represents a departure from the current educational structure based on Carnegie units, hours per day, and days per year. As this movement to variable time schedules for learning continues, schools will need to make decisions that provide flexibility in learning schedules. Flexible time schedules for learning can be provided in several ways. Some of the strategies that provide more flexible scheduling are found in mastery learning/outcome-based education, the Champlin Park High School structure, the Copernican Plan, and Sizer's Essential Schools flexible time for learning.

Schleisman and King (1990) report that outcome-based education (OBE) and mastery learning models focus on making learning the constant and time the variable. These two programs normally follow Bloom's mastery learning model as implemented at Summit High School (1991) in Frisco, Colorado. In the mastery learning model the teacher defines the objectives clearly, provides instruction to the entire group, and

completes a formative evaluation. Students who have mastered the objectives move on to enriched topics or advance to the next unit. Students who have not yet mastered the objectives complete some form of corrective assignments or participate in some other second chance learning activity. After they have provided evidence of mastery they move on to new material or enriched activities. Mastery learning can be accomplished in the traditional six or seven period day. The mastery learning/outcome-based education model allow extended learning times to be provided over several days or in summer school.

In 1992 Champlin Park High School will adapt the traditional six period day to allow all teachers to have the same preparation period and provide three ninety-minute class periods within the day. All teachers will have a common preparation period during the first hour of the day. Students will arrive at school after the preparation period is over and attend three classes. The first and third class periods last ninety minutes. The second period lasts for two hours and includes four lunch periods of one-half hour each. All students will be in class the entire day; study halls will be eliminated. In addition to the alteration of the traditional time schedule, Champlin Park is using an outcome based education approach, which provides added flexibility to the learning process. Some of the benefits of this plan include: (a) no teacher has more than three classes of students limiting teacher contact to approximately ninety students; (b) no teacher will have to prepare for more than three different subjects; (c) in-class time will be provided for students to have in-depth study of course material; (d) students will need to manage homework for three classes, not five or six; and (e) teachers will be able to work together to prepare during their common planning period. As this list of benefits indicate, adaptation of the traditional school day is designed to improve the educational delivery system for both students and teachers.

Carroll (1990), claims that the current high school structure places students in perpetual motion and interrupted study. With his *Copernican Plan:*, he proposes "major restructuring of virtually all basic systems within a high school" (p. 358). The plan requires a fundamental change in schedule. "Instead of having students change locations, subjects and activities seven to nine times each day, we ask them to concentrate on one or two subjects at a time each taught in an extended macroclass"(p. 358).

Features in the Copernican Plan include macro scheduling, individualized instruction, opportunities to deal with complex issues, differentiated diplomas, mastery-

based credits, efficiency of learning, individualized learning plans, and dejuvenilizing high schools. Macroscheduling addresses the issue of superficiality, which occurs because too many classes are offered in one day and, consequently, no subject is studied in depth. Two alternatives to the traditional schedule are proposed: (a) one four-hour class each day for thirty days; and (b) two two-hour classes each day for sixty days. Macro classes allow students to concentrate on one or two subjects at a time. With such extended classes, it seems evident that instructional methods need to change. What student could pay attention to a four-hour lecture? Under the Copernican Plan the teacher teaches one or two classes at a time. Fewer classes allow teachers to focus on different levels of student ability within the class as opposed to different students and different subjects. Therefore, the Copernican Plan allows teachers to use individualized instruction geared to the student's level of understanding. Because students study the same subject for extended periods of time, they are able to get into the more complex issues that surround the subject. In addition, mastery learning, individual learning plans, and differentiated diplomas allow each student to achieve at a personalized level.

The Copernican Plan requires that students use responsible, mature behavior—Carroll calls it dejuvenilizing the high school. "The Copernican Plan affects every aspect of the school environment—physical, organizational, and psychological—in ways that encourage more responsible behavior on the part of students . . . and provides a more adult, mature, productive, personalized, relevant, and interesting high school experience for each student" (p. 365).

Sizer also addresses the need for flexibility in the organization of learning time through the nine principles for the Coalition of Essential Schools. Sizer recommends that *time served* and *credits earned* disappear as a criteria for performance. Instead, students need a setting where they can learn a few things well, be required to exhibit their mastery of goals, and be allowed to attend school until that mastery is attained. Each school in the Coalition is attempting to develop a program that addresses the personal needs of students. Although Sizer does not advance a specific model for providing flexible learning time, he believes it is essential to provide students with ample time to master the subject matter. No longer will teachers be allowed to simply cover the material. Students must demonstrate that they have mastered the material before they graduate.

Each of the above strategies for organizing learning time has a slightly different emphasis although all agree that learning, not time, is the critical element. First, the mastery learning/outcome-based education model can be accomplished within the traditional time structure through expanded learning times which do not have to occur within a continuous time period but can be pursued over consecutive days. Second, Champlin Park's model allows the day to be structured to the benefit of both teachers and students. Third, Carroll's Copernican Plan recognizes the need to have extended time periods for in-depth study. His plan organizes the school day into extended blocks, which allow for that in-depth study and mastery of material. Finally, Sizer's flexible learning time requires that ample time must be available to students so that they can master the subject matter and be able to demonstrate subject matter mastery before graduation. Each strategyfor organizing learning time is based on the belief that learning is the constant and time the variable.

Organizing the Teaching Staff

Boyer (1983) reported that the average high school contains sixty-three classroom teachers and "eleven other full-time professional staff members such as librarians, guidance counselors, and principals" (p. 158). These adults typically operate in close proximity to one another. However, even though they are physically close to one another, the traditional self-contained classroom and heavy teaching schedule isolate teachers from spending time in the company of the other adults. Boyer reports that teachers often have no permanent classrooms, inadequate teaching supplies, and fear physical violence and assault. Boyer concludes that "the teacher's world is often frustrating, frequently demeaning and sometimes dangerous" (p. 159). As a result of such staff situations, educators are reviewing the current organization of the staff and making recommendations they feel should result in improved conditions for both the staff and the educational system. The ideas recommended could be placed on a continuum that ranges from slight modifications to the traditional organization of the staff to an extensive integration of staff within a school-within-a-school structure. The following categories seem to represent steps in the continuum: (a) some modification of traditional staff organization; (b) extensive modification of traditional staff organization; (c) integration of some staff in a new structure; and (d) integration of most staff in a new structure.

Some Modification of Traditional Staff Organization

Boyer's recommendations represent some modifications in traditional staff organization. Specifically, he focuses on improving the working conditions of teachers without changing the basic structure of the traditional school. He recommends that high school teachers: (a) "have no more than four formal class meetings" (p. 159) and one period of small seminar or independent work with students; (b) have sixty minutes a day for preparation time; (c) should not have to supervise lunchrooms and hallways; (d) should be provided with adequate supplies and attractive lunch rooms, and (e) should be able to teach in a physically safe environment. In addition to the improvements in working conditions, Boyer also believes that teachers should be recognized for their talents. According to Boyer, his recommendations for improved working conditions and teacher recognition are necessary for improved education.

Extensive Modification of Traditional Staff Organization

Benson discusses more extensive modifications in the traditional staff organizational structure. His modifications, which address the need for greater teacher collegiality and collaboration, can, like Boyer's, be accomplished within the traditional structure. His recommendations include: (a) all teachers should have "a single time in the week to meet and work together as a whole school group (p. 19), and (b) integrative techniques such as "team teaching by academic and vocational faculty, joint design of programs, collaborative efforts in writing problem sets and other instructional materials, common efforts in devising new schemes of student assessment,(p. 19) should be used to provide collegiality. Benson's recommendations are designed to improve the working conditions and encourage communication.

Other examples of integration of staff in traditional school structures were discussed by Drake and Beck, Copa and Pease. Drake reports that "three men and three women, strangers to one another, selected from across the province to develop interdisciplinary curriculums funded by the Ontario Curriculum Superintendent's Cooperative" (p. 20), each with expertise in a different subject area, developed integrated curriculums for schools. In this case the integration of staff occurred outside the classroom and focused on joint writing of curriculum. Beck, Copa, and Pease report that within the traditional school structure, classroom projects that integrate vocational and academic eachers can be successful. Integration sparked student interest and motivated them to "work hard on their projects" (p.

31). In addition, theire teachers indicated that the communications among the colleagues had improved. These integration project happened within the traditional school structure.

Integration of Some Staff in a New Structure

When students in large school are divided into smaller groups, the staff organization can change as well. Two structures that represent integration of some staff in a new structure occur when some staff assignments are changed as a result of providing a small school for some students, or some staff assignments are changed as the result of dividing the whole school for all students without dividing the whole staff.

Nickle, Flynt, Poynter, and Rees (1990) report an example of staff changes as a result of providing a small school for some students. According to the authors, four teachers with multiple certifications were chosen to become the nucleus for an interdisciplinary school-within-a-school program for a group of eighty students. With support from the Coalition of Essential Schools workshops, teachers altered the structure of the school day and used a coaching instructional style. The eighty students contained all ability levels and age groups in grades ten through twelve. The structure encouraged teachers to coordinate teaching and "draw on what other we know has been done by other members of the teaching team" (p. 152). It appeared to be successful. However, as this program was expanded to include more students and additional teachers, it was no longer voluntary. Nickle, Flynt, Pointer and Rees (1990) report enlarging the program resulted in less satisfaction of students and teachers. They recommend that the entire staff be kept up-to-date and provided with information that supports the changes.

According to Oxley, some loosely connected house plans provide division of students for some purposes rather than all purposes. For example, she describes one house plan which organized by providing a full complement of support staff—deans, counselors, family assistants—to each house but did not assign teachers to specific houses. Another house plan assigned a small core of teachers and partially organized support staff around each house. Still, a third school assigned students to class size groups that met with a teacher coordinator for one period a day. No other support or teaching staff were assigned to the students. Each of the methods provided a method for integrating some staff members into the house structure.

In these examples only a portion of the staff in each school is assigned to a specific house or a school-within-a-school. The remainder of the staff is organized according to some other model. Usually they remain in a traditional structure, divided by disciplines.

Integration of Most Staff in a New Structure

When the entire student body is divided into smaller groups, it may be appropriate to divide the staff as well. Examples of this division of staff can be found in Raywid's fictional Paradigm High School, Oxley's recommendations for the ideal house plan, and the Holweide School in Cologne, Germany.

Raywid's (1989) Paradigm High School divides the entire student body into four schools-within-a-school that each focus on a particular theme, which evolves out of teachers and students interests. Raywid recommends ten teachers and two hundred fifty students be assigned to each school. The teachers would meet in groups to discuss general matters and elect a teacher director for each school, who is responsible for school leadership more than management. In addition to the large group meetings, smaller teacher groups would meet to discuss team teaching and other responsibilities. Although ten teachers were assigned to each group of students, students need not necessarily receive all instruction from the ten teachers assigned to their school. Raywid suggests that students may occasionally register in classes in another school, take courses at colleges or universities, be taught by someone from the community, or do individual study with mentors who could be local business or professional people. Because some facilities such as the library, the gym, and the auditorium are shared by all students, it appears faculty in those areas would also be shared. In addition, to a teaching assignment, each teacher has an advisory group which meets regularly. Each student, through the advisory group, is provided with one adult with whom each student connects. Raywid believes that this school-within-a-school structure will encourage the development of a socio-cultural system that truly engages students and allows teachers to be more effective.

Oxley's recommendations for an ideal house plan deal with several questions which surround staffing of the house. She recommends that houses be large enough to "support a full complement of core course teachers, thus allowing students to take most or all of their core courses within a house" (p. 31). In addition, "a sufficient number of guidance counselors and, possibly, a social worker and paraprofessionals should be assigned to the house to permit students to meet most of their needs within the house" (p. 31). Finally,

each house should include a coordinator (this person could be an assistant principal) "who can organize house activities and coordinate whatever services are provided through the house" (p. 31). Oxley believes her recommendations will "have a major impact on school climate and thus on student learning and teacher morale" (p. 52).

Holweide School in Cologne, Germany, uses a structure that it identifies as team-small-group-plan. This plan divides the students and staff in a school of approximately two thousand students and two hundred teachers into smaller units called teams. According to Ratzki and Fisher (1989), the teams are small groups of teachers, usually six, responsible for ninety students who are in three units called classes. The teachers and pupils stay together for six years, for grades five through ten. The teams teach all subjects, decide how they will be taught, determine the structure of the day, and decide on teacher assignments within the group. They hold regular team meetings. Although standards are consistent for all pupils, the teams decide how to help students meet those standards. Ratzki and Fisher report that although "teachers in Germany have not found it easy to come to terms with team structures" (p. 51), student and teacher experiences at the Holweide School have convinced nearly everyone that the method has merit.

In each of these examples all of the students and most of the staff members are assigned to specific groupings of students. However, some staff members, such as librarians, would remain in more traditional roles. Staff members who were assigned to groups of students frequently work in teams that use some level of integrated curriculum.

The continuum for organizing staff appears to move from some slight modification of the traditional system to almost complete staff integration in a new structure. As evident in the above discussion, the staff organization in the traditional system can allow some integration between subject areas. However, to move to the total integration of subjects, a more complete reorganization of staff might be necessary. Staff changes, which are made as a result of the school-within-a-school structure, can be accomplished in several ways. Some schools assign counselors and principals to the school-within-a-school without assigning teachers. Others assign teachers as well. It appears that the most complete method of staff integration within a school-within-a-school structure would be one in which most of the staff were assigned to a specific "school." Within this structure, the staff could work together to provide an integrated curriculum for a specific group of students.

Conclusion

New Designs for the Comprehensive High School should provide a strong community with focus and character, which pays attention to important learner process considerations as it supports the acquisition of identified learner outcomes. New Designs will require that thoughtful consideration be given to the organization of learners, learning settings, learning processes, learning time schedules, and the teaching staff.

Organizing Learners

High school models for organizing learners which meet student needs for connectedness and improved interpersonal relationships can be divided into two categories: (a) providing a small school within a whole school for some students, and (b) dividing the whole school into smaller schools for all students.

When a small school is provided for some students those students can be grouped based on interest, need, or ability. Most of the research recommends avoiding tracking or grouping by ability level. Models that fall into this category include school-within-a-school programs for at-risk students or special interest groups.

When a whole school is divided into small schools for all students, students can be vertically or horizontally heterogeneously grouped or grouped by interest. Examples of these structures are found in Paradigm High School, Woodland High School's career paths, Champlin Park High School's house plan, and Oxley's description of an ideal house plan.

Organizing the Learning Process

Many researchers believe that the complexity, confusion, and incoherence found in the typical high school curriculum structure should be eliminated. These concerns could be addressed through an integration of disciplines and an alignment of the learning processes—curriculum, instruction, and assessment. There are several methods for integrating curriculum, ranging from a simple connection of two topics in a subject to a total integration of all learning controlled by the learner. Some of the options for integration of curriculum include: (a) integrating discipline by discipline, (b) integrating learner outcomes by discipline, (c) organizing around learner outcomes without disciplines, or (d) clustering learning by theme problem or area of social development. Several

researchers including Fogarty, Plihal, Johnson, Bentley, Morgaine, and Liang, Drake, and Beck, Copa, and Pease discussed processes for the integration of curriculum.

Even though the curriculum is integrated, it still seems necessary to departmentalize the high school. Suggestions for the new departments would include organization by: (a) career paths, (b) themes, (c) problems or concerns, or (d) learner outcomes. Before decisions are made regarding the integration of curriculum the following questions should probably be addressed: (a) Why is curriculum integration important?; (b) What should be integrated?; (c) Who should benefit from integration?; and (d) How should integration be fostered?

Organizing the Learning Setting

In addition to the learning opportunities provided in the home school, other educational institutions and the community can provide additional settings for learning opportunities.

Other educational organizations which provide added opportunities include colleges, area vocational schools, state schools, and area learning centers-alternative programs. Legislation that allows and/or promotes these opportunities includes the post-secondary option plan and the tech-prep legislation. The recognition that the home school may not fill the needs of all students has provided the impetus for the expansion of these options in other educational institutions.

Learning settings within the community are provided in apprenticeship programs, cooperative vocational education programs, school-supervised work experience, and community service learning. Learning in the community allows students to enter the real world environment, observe experts, and engage in actual community and work experiences.

Organizing Learning Time

Discussion and research regarding learning time focuses on the belief that learning should be the constant and time the variable. Some of the strategies that allow flexibility in time include the mastery learning/outcome-based education models, the block structure, the Copernican plan, and flexible scheduling. The mastery learning/outcome-based education

model can be used in a traditional six- or seven-period day. The other strategies may require an adjustment in the traditional schedule. The block structure proposed for Champlin Park contains three ninety-minute periods. The Copernican plan includes two and three-hour blocks for integrated disciplines and shorter periods for other areas. The goal of the flexible learning time is to provide ample time for mastery of material by all students according to their needs.

Organizing the Staff

The organization of the staff needs to be adapted to reflect the needs which arise from providing an integrated curriculum for smaller groups of students. Although the organization of the staff can be adjusted within the traditional school structure, it may be more beneficial to integrate the staff in a new structure. This comprehensive integration of teaching staff in a new structure is evident in Paradigm High School and in the Holweide School in Cologne, Germany. Both structures assign a specific group of teachers to a group of students. These teachers and students could be identified and matched based on their needs or interests. Librarians, nurses, or other specialized staff may need to remain in traditional roles, but most of the staff could be assigned to a specific group of students. The staff could work together to provide the learning experiences that were best suited for the students with whom they were working.

This paper has focused on some specific models for organizing learners, learning process, learning settings, learning time, and staff. Each area is important to the organization of the entire school and each should be structured in a manner that allows optimum learning. Each will need to be considered in light of the decisions that are made about the organization of the other areas. Only when there is interaction among all of the organizational structures within the school will the new design for the comprehensive high school be complete.

Recommended Design Specifications Concerning Learning Organization

The following list of design specifications should be followed for the "New Designs for the Comprehensive High School":

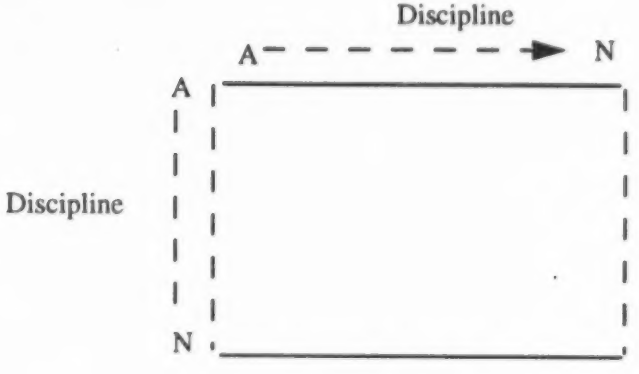
1. The organization of the school must be in alignment with the learner outcomes and the learning process. The components of the organization (i.e., students, learning process, setting, time, and staff) must be aligned among themselves.

2. The internal grouping of the student population in the high school should be restricted or limited in size in order to build community and maximize motivation and achievement. Several reports have indicated that student groups of approximately two hundred fifty to five hundred students would probably be small enough to allow students to feel connected and large enough to support a sound instructional program.

3. Curriculum organization should encourage integration of the separate discipline areas to reach the learner outcomes. It may by possible to organize curriculum by outcomes or by areas of social development. Some possible options for integrating curriculum include:

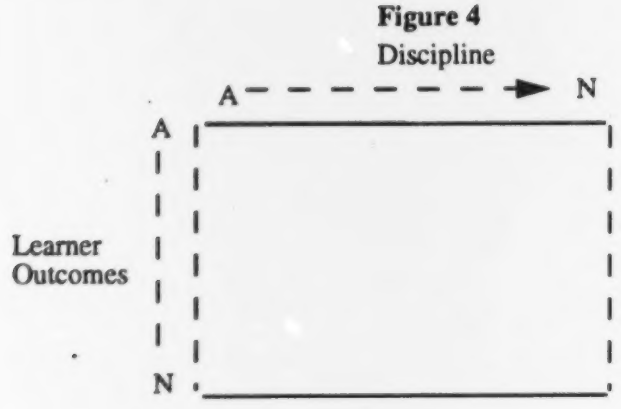
   a. Discipline by Discipline

Figure 3



b. Outcomes by Discipline

Figure 4



c. Learner Outcomes A ---------> N

(Eliminate departments for each discipline.)

d. Clustered using a theme, problem, or area of social development.

4. Scheduling of learning time should be flexible to encourage and support reaching learner outcomes through a variety of learning strategies, which allows a concentrated effort when appropriate.

5. The student population should be heterogeneously grouped. Homogeneous groupings by ability or age should be discouraged as counterproductive. Grouping by interest may be appropriate when it serves to meet learner, learning time, or learning process needs.

6. Each student should be involved in a planning process to reach learner outcomes in a way that is responsive to her/his needs and interests. This planning process should result in a flexible learning plan for each student, which is reviewed periodically.

7. The students should be provided with maximum opportunities to change direction and focus as they move toward completion of high school. The curriculum structure must allow all students to change their focus or study new areas of interest

whenever they desire without being restricted by prerequisites and/or curriculum tracks.

8. The curriculum and student organizational structure should allow each high school or high school grouping to have a recognizable, special character or focus that creates a feeling of community for students and increases student motivation and interest and, consequently, achievement.

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